

ABSTRACT

A method is disclosed for delivering molecules such as pharmaceutical drugs and nucleic acids into skeletal muscle in vivo. The molecule is first injected into the muscle at one or multiple sites. Immediately or shortly after injection, electrodes are placed flanking the injection site and a specific amount of electrical current is passed through the muscle. The electrical current makes the muscle permeable, thus allowing the molecule to enter the cell. In the case where nucleic acid is injected, the efficiency of transfer permits expression of protein encoded by the nucleic acid in an amount that exhibits systemic biological activity and which generates a robust immune response.